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ABSTRACT

This data brief features statistical data related to total science and engineering graduate enrollment in the United States for the year 1997. Featured are data on enrollment by enrollment status: 1975-1997; by sex, citizenship, and race/ethnicity: 1990-1997; and by field: 1990-1997. (DDR)

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Division of Science Resources Studies

DATA BRIEF

National Science Foundation

Directorate for Social, Behavioral, and Economic Sciences

December 17,1998

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Total Science and Engineering Graduate Enrollment Falls for Fourth Consecutive Year

by Kristen Olson

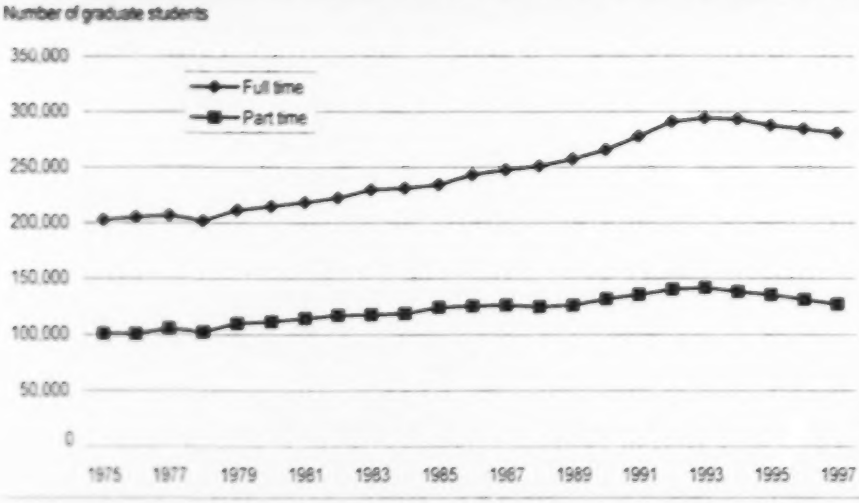
Graduate enrollment of women and underrepresented minorities rose despite overall declines.

The number of students enrolled in science and engineering (S&E) in the United States at the graduate level fell for the fourth year in a row in 1997 (figure 1). In 1996, 415,363 graduate students were enrolled in S&E fields; this number had dropped 2 percent by 1997 to 407,644. This 2 percent decline held for both science and engineering enrollments: the number of science graduate students dropped from 312,140 to 306,636, and the number of engineering graduate students fell from 103,223 to 101,008. Part-time enrollments decreased more than did full time. Full-time student enrollment dropped 1 percent, from 284,194 in 1996 to 280,612 in 1997; while part-time enrollment decreased by 3 percent.

S&E graduate enrollment trends varied by sex. Among men, enrollment in S&E continued to decline, as it has since 1993, dropping 3 percent from 253,629 in 1996 to 245,615 in 1997. On the other hand, the number of women enrolled in S&E graduate school rose slightly, increasing from 161,734 to 162,029. In 1997, women were 40 percent of S&E graduate students (table 1).

Among U.S. citizens and permanent residents, the numbers of black, Hispanic, and American Indian S&E graduate students increased again in 1997. Black S&E graduate students rose 1.5 percent from 19,071 in 1996 to 19,363 in 1997; the number of Hispanics increased 2.4 percent from 14,638 to 14,988; and the number of American Indians increased 3.9 percent from 1,539 to 1,599. In contrast, the number of white S&E graduate students decreased by 4.3 percent, from 238,077 in 1996 to 227,936 in 1997. Black, Hispanic, and American Indian students together accounted for 9 percent of U.S. citizen and permanent resident S&E

Figure 1. Graduate enrollment in science and engineering, by enrollment status: 1975-97



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering, 1997.

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Table 1. Graduate students in S&E, by sex, citizenship and race/ethnicity: 1990-97

Field	1990	1991	1992	1993	1994	1995	1996	1997
Both sexes	397,135	412,697	430,644	435,886	431,251	422,555	415,363	407,644
Men	263,394	271,845	280,397	279,289	272,120	262,341	253,629	245,615
Women	133,741	140,852	150,247	156,597	159,131	160,214	161,734	162,029
U.S. citizens and permanent residents	294,318	304,063	321,182	330,169	329,095	324,017	317,209	308,835
White	238,472	243,602	253,435	256,859	255,719	245,889	238,077	227,936
Asian	17,155	18,136	21,752	24,059	26,474	25,901	25,947	26,078
Black	12,774	13,691	15,445	17,118	17,611	18,283	19,071	19,363
Hispanic	10,159	11,045	12,246	13,381	13,281	14,117	14,638	14,988
American Indian	1,054	1,120	1,243	1,309	1,383	1,516	1,539	1,599
Other or unknown	14,704	16,469	17,061	17,443	14,627	18,311	17,937	18,871
Non-U.S. Citizens	102,817	108,634	109,462	105,717	102,156	98,538	98,154	98,809

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering, 1997.

graduate students in 1997. The number of U.S. citizen and permanent resident Asian graduate students in S&E increased less than 1 percent, from 25,947 in 1996 to 26,078 in 1997.

The number of foreign S&E graduate students rose by 0.7 percent in 1997 to 98,809, reversing a decline evident over the past four years. Between 1992 and 1995, enrollment of foreign students dropped by about 3.5 percent per year[1] from a peak of 109,462 in 1992 to 98,538 in 1995. In 1996, the decline leveled off with the number of foreign S&E graduate students falling by 0.4 percent to 98,154.

In 1997, graduate enrollment dropped in all major S&E fields with the exceptions of the computer sciences and electrical engineering. Enrollment declines were greatest in civil engineering (down 8 percent); mathematics (down 7 percent); industrial engineering (down 5 percent); physical sciences (down 4 percent); earth, atmospheric, and ocean sciences (down 4 percent); and aerospace engineering (down 4 percent). Graduate enrollment in computer sciences, which had dropped in the early 1990s, increased in the last two years, growing 3 percent from 1995-96 and another 4 percent from 1996-97 (table 2).

Data presented in this Data Brief were obtained from the 1997 Survey of Graduate Students and Postdoctorates in Science and Engineering. Data were collected from approximately 11,600 departments at 601 institutions of higher education in the United States and outlying areas. The departmental response rate was 98.3 percent; however, 14 percent of the responding departments required partial imputation for missing data. More detailed data are available in the forthcoming report, *Graduate Students and Postdoctorates in Science and Engineering: Fall 1997.*

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[1] Trends in foreign student enrollment are complicated by two factors: (1) In 1991 and earlier years, permanent residents in this survey were included with foreign students. Beginning in 1992, permanent residents were included with U.S. citizens. (2) The Chinese Student Protection Act of 1992 allowed Chinese students to apply for permanent residency in 1993. As the result of both factors, the number of foreign graduate students from 1992-94 was lower than it would have been had these factors not occurred and the number of U.S. citizen graduate students was higher than it would have been.

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Table 2. Graduate students in S&E, by field: 1990-97

Field	1990	1991	1992	1993	1994	1995	1996	1997
S&E total	397,135	412,697	430,644	435,886	431,251	422,555	415,363	407,644
Sciences, total	289,510	299,121	312,609	319,028	318,228	315,356	312,140	306,636
Physical sciences	34,075	34,710	35,348	35,318	34,449	33,417	32,355	31,108
Earth, atmospheric, & ocean sciences	13,984	14,480	15,347	15,805	16,042	15,805	15,280	14,644
Mathematical sciences	19,774	19,952	20,355	20,000	19,579	18,509	18,015	16,759
Computer sciences	34,257	34,610	36,293	36,189	34,128	33,432	34,592	36,010
Agricultural sciences	11,316	11,506	11,827	11,914	12,199	12,367	11,914	11,810
Biological sciences	49,989	51,778	54,177	56,452	58,143	58,736	58,128	57,135
Psychology	48,167	51,343	53,484	54,557	54,554	53,641	53,209	53,142
Social sciences	77,948	80,742	85,778	88,793	89,134	89,449	88,647	86,028
Engineering, total	107,625	113,576	118,035	116,858	113,023	107,199	103,223	101,008
Aerospace	3,934	4,120	4,036	3,940	3,715	3,343	3,208	3,083
Chemical	6,735	7,127	7,397	7,516	7,608	7,424	7,373	7,247
Civil	15,542	17,398	19,572	19,583	19,925	19,218	18,528	17,033
Electrical	33,722	35,182	36,460	35,314	33,050	30,747	29,736	30,617
Industrial	11,248	12,676	13,525	13,596	13,661	13,143	12,399	11,725
Mechanical	16,879	17,730	18,637	18,477	17,761	16,363	15,509	15,044
Metallurgical & materials	4,941	5,160	5,512	5,363	5,191	4,920	4,713	4,649
Other	14,624	14,183	12,896	13,069	12,112	12,041	11,757	11,610

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering, 1997.

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